Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Observation of resonant modes of coupled domain walls TIMOTHY PHUNG, AAKASH PUSHP, CHARLES RETTNER, BRIAN HUGHES, SEE-HUN YANG, STUART S.P. PARKIN, IBM Almaden Research Center — Domain walls (DWs) in permalloy nanowires can be coupled together to form bound states (360° DWs) due to the repulsion arising from the interaction of the elementary topological defects of the DWs. Such repulsion prevents the annihilation that would otherwise occur due to magnetostatic interaction between the DWs. Here we demonstrate that the adjacent DWs mimic the response of coupled oscillators when driven by spin-polarized currents, and that their coupling can be tuned by applying a magnetic field to either push them closer or pull them apart.

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Date submitted: 15 Nov 2013 Electronic form version 1.4